Claims:

1. A computer readable storage medium containing a program that, when executed upon a computer system, causes the a receiver to perform a method of receiving a radio frequency (RF) signal comprising:

receiving a plurality of spatially diverse replicas of the RF signal;

adaptively combining the plurality of spatially diverse replicas to generate an equalized RF signal.

2. The computer readable medium of claim 1 wherein the combining step comprises:

spatially equalizing each of the plurality of spatially diverse replicas;

combining the spatially equalized replicas to generate a combined signal;

generating a symbol error signal from the combined signal using a symbol slicer;

temporally equalizing the combined signal using a decision feedback equalizer; and

adapting the spatial equalizing and the temporal equalizing steps to the symbol error signal.

3. The computer readable medium of claim 1 wherein the combining step comprises:

spatially equalizing each of the plurality of spatially diverse replicas;

combining the spatially equalized replicas to generate a combined signal;

generating a symbol error signal from the combined signal using a maximum likelihood sequence estimation process;

temporally equalizing the combined signal using a decision feedback equalizer; and

adapting the spatial equalizing and the temporal equalizing steps to the symbol error signal.

4. An apparatus for receiving a radio frequency (RF) signal comprising:

a front end for receiving spatially diverse replicas of the RF signal, selecting the RF signal from a frequency band, and digitizing the selected RF signal; and

an integrated circuit comprising means for adaptively combining the spatially diverse replicas of the selected RF signal to generate an equalized RF signal.

5. The apparatus of claim 4 wherein the integrated circuit is an application specific integrated circuit (ASIC).

6. The apparatus of claim 4 wherein the means for adaptively combining comprises:

a plurality of feed forward equalizers;

a combiner for combining the output signals from each of the plurality of feed forward equalizers to form a combined signal;

a carrier/slicer circuit for extracting the carrier from the combined signal and generating a symbol error signal;

a decision feedback equalizer for suppressing inter-symbol interference in the combined signal; and

a tap control circuit for adjusting the tap weights of the plurality of feed forward

equalizers and the decision feedback equalizer using the symbol error signal.

7. The apparatus of claim 4 wherein the means for adaptively combining comprises:

a plurality of feed forward equalizers;

a combiner for combining the output signals from each of the plurality of feed forward equalizers to form a combined signal;

a maximum likelihood sequence estimation (MSLE) circuit for generating a symbol error signal from the combined signal;

a decision feedback equalizer for suppressing inter-symbol interference in the combined signal; and

a tap control circuit for adjusting the tap weights of the plurality of feed forward equalizers and the decision feedback equalizer using the symbol error signal.

8. The apparatus of claim 5 wherein the ASIC is a programmable ASIC and the apparatus further comprises a microcontroller for configuring the programmable ASIC to implement the means for adaptively combining the spatially diverse replicas of the RF signal to generate an equalized RF signal.

9. An apparatus for receiving a radio frequency (RF) signal comprising:

a front end for receiving spatially diverse replicas of the RF signal, selecting the RF signal from a frequency band, and digitizing the selected RF signal; and

a digital signal processor comprising means for adaptively combining the spatially diverse replicas of the RF signal to generate an equalized RF signal.

10. The apparatus of claim 9 wherein the means for adaptively combining

comprises:

a plurality of feed forward equalizers;

a combiner for combining the output signals from each of the plurality of feed forward equalizers to form a combined signal;

a carrier/slicer circuit for extracting the carrier from the combined signal and generating a symbol error signal;

a decision feedback equalizer for suppressing inter-symbol interference in the combined signal; and

a tap control circuit for adjusting the tap weights of the plurality of feed forward equalizers and the decision feedback equalizer using the symbol error signal.

11. The apparatus of claim 9 wherein the means for adaptively combining comprises:

a plurality of feed forward equalizers;

a combiner for combining the output signals from each of the plurality of feed forward equalizers to form a combined signal;

a maximum likelihood sequence estimation (MSLE) circuit for generating a symbol error signal from the combined signal;

a decision feedback equalizer for suppressing inter-symbol interference in the combined signal; and

a tap control circuit for adjusting the tap weights of the plurality of feed forward equalizers and the decision feedback equalizer using the symbol error signal.

12. The apparatus of claim 9 wherein the DSP is a general purpose DSP and the apparatus further comprises a microcontroller for configuring the general purpose

DSP to implement the means for adaptively combining the spatially diverse replicas of the RF signal to generate an equalized RF signal.

13. The apparatus of claim 9 wherein the tuners and the DSP are implemented as an application specific integrated circuit (ASIC).